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# Spatial (e)quality from a user perspective

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**Abstract.** Universal Design (UD) has gained global significance and is in the process of being interpreted and institutionalised in the Nordic Region. Hence a broader understanding of the theoretical basis and practical architectural applicability of UD is advancing.

This paper builds a framework for understanding two current notions of UD and accessibility in Denmark. Implications are that understandings and motivations of UD and accessibility from architects' and users' perspective are asymmetrical. In collaborative relationships, UD and accessibility are seen from an architectural design perspective and a human rights perspective respectively. This influences the dialogue and cooperation of the two parties.

Reflecting the possibility to further a comprehensive understanding of spatial implication of UD, this paper aims to contribute with a clarification and a discussion of the two perspectives. Within the architectural field, Disabled People's Organisations Denmark (DPOD) is one of the key actors in user participatory processes related to UD and accessibility, and the organisations play an important role in a Danish discourse.

Through observations and interviews with DPOD user representation and practicing architects, the paper sheds light on the central notions of UD and accessibility - a spatial quality perception and a spatial equality perception. Along with qualitative research conducted at the Danish Building Research Institute, the on-going PhD research project "*Generating Inclusive Built Environments through User Driven Dialogue in the Architectural Design Process*" frames current thinking and discusses the process of advancing the dialogue, in direction of furthering both Spatial Quality and Spatial Equality.

**Keywords.** Universal Design, Architecture, Values, Design Process

## 1. Introduction

As the practical architectural applicability of Universal Design (UD) is advancing and modern design thinking at the same time welcomes design strategies that actively involve various user groups, attention to diverse understandings and motivations of UD and accessibility is desirable [1].

Design and the practice of creating in architectural processes have been taking on new forms to meet participatory design strategies, involving user groups in creative processes. In processes of organising accessible design solutions and inclusive built environments, collaborative constructions have been initiated in an effort to meet a broad range of objectives and requirements. These particular collaborative relationships address a need for a clarification of UD and accessibility as concepts and a possible shared understanding of the two, including motivations and intentions behind the terms.

In dialogue-based activities and collaborative relations, a transparent framework of prerequisites, perceptions, and motivations is appropriate in order to speak the same language and meet shared ambitions [2].

Drawing upon studies from the ongoing PhD research project “*Generating Inclusive Built Environments through User Driven Dialogue in the Architectural Design Process*” and research conducted at the Danish Building Research Institute, implications are that understandings and motivations of UD and accessibility from architects’ and users’ perspective are asymmetrical. In collaborative relationships, UD and accessibility are seen from an architectural design perspective and a human rights perspective respectively. The unbalanced understandings and motivation appear to influence both dialogue on a theoretical level and participatory collaborations on a practical level.

In this paper, I build a framework for understanding how the two dissimilar understandings and motivations of UD and accessibility on different levels not only influence the discourse on inclusive built environments in Denmark, I also hypothesise how it can interrupt dialogue and hinder innovative interactions between user groups and the architectural field.

First I present initial findings of the PhD research project, covering selected results of qualitative interviews with representatives of Disabled People’s Organisations Denmark and professionals from the architectural field together with participating observations and case studies in DPOD.

Next I elaborate on the unbalanced understandings and motivations of UD and accessibility and assess the influence of the dissimilarities when collaborating in design contexts of UD and accessibility.

Finally I discuss the scope of reviewing impairment as a condition of human variety in architectural design processes and introduce the UD paradigm as a means to implement spatial equality as a feature of spatial quality.

When I use the term Universal Design (UD) in this article, it refers to a broad spectrum of methods meant to produce buildings, products and environments that are inherently accessible to all users regardless of abilities, hence also children, older people, people without impairments, and people with impairments [3]. Additionally, Universal Design is referred to as a design strategy for architecture and landscaping as well as external political and social strategies for inclusion in order to embrace a broad-based community.

## **2. Methodology**

Empirical knowledge gained from PhD research studies, observations and qualitative interviews with both DPOD representatives and key actors from the building industry is outlining understandings and motivations of UD and accessibility from two perspectives in the dialogue.

The methodology of interviews used in the PhD framework is qualitative semi- structured interviews. The method chosen allowed freedom for the interviewer and the interviewee to explore additional themes and change direction in the interview, if necessary. This offered the opening to capture rich, descriptive knowledge of interviewees’ attitudes and perceptions of collaborative relationships.

The presented knowledge was gained from interviews with political consultants of DPOD, DPOD user representatives from local chapters, professional architects and representatives of six key organisations from the Danish building industry.

Disabled People's Organisations Denmark is a national umbrella organisation with 34 member organisations embracing more than 300,000 members. DPOD organisations define their commitment to engage in efforts that serve to encourage and protect the rights of persons with disabilities. The objectives for these organisations' active participation in design processes of UD and accessibility partly stems from an earlier absence of interest or engagement of stakeholders, professional practicing architects and the building industry as such [4].

The DPOD representatives interviewed cover a group of disabilities which are all interrelated with requirements of accessible design solutions, such as wheel-chair users, visually impaired, hearing impaired, speech-language impaired and intellectually impaired. Groups of disabilities with no direct relation to requirements of accessible design solutions are not a part of the interviews, such as diabetes, attention-deficit/hyperactivity disorder, epilepsy, heart conditions and emotional disturbances.

The reasons for my attention to the DPOD user group are that these organisations together with the architectural field have become key actors in user participatory processes related to UD and accessibility. Both parties play a significant role in a Danish UD and accessibility discourse. Understandings and motives of UD and accessibility of this particular collaborative relationship are of importance, as they are closely interwoven in the process of setting shared political ambitions for inclusive built environments in Denmark [5].

### **3. Spatial quality and spatial equality**

To support my effort in creating a nuanced frame for understanding how the two notions of UD and accessibility influence the discourse, I bring into play a matrix of three levels. The matrix holds and categorizes diverse approaches, agendas and objectives of UD [6].

The macro level covers ethics, thinking, understandings of disability and views on human rights. The macro level handles UD through policy and legislation.

The meso level is an intermediate level covering planning, regulations, implementation, technical knowledge and collaborative processes. The meso level requires technical and practical knowledge to develop and implement UD.

The micro level holds knowledge of individual's perspective, knowledge of where and how barriers occur and how they are experienced by individuals with impairments. The micro level requires knowledge of the complex interplay between individuals and surroundings.

### Matrix of three levels

Macro level	Knowledge of ethics, humanity and views on human rights. The UN Convention, mission statements of legislation and community planning.
Meso level	Technical knowledge, design of services and assistance. Implementation of plans and regulations. Knowledge of collaboration in processes.
Micro level	Knowledge of individual's perspective, where and how barriers occur and who experiences barriers.

**Figure 1.** matrix of three levels [Lid, I.M. 2013] .

The matrix of three levels underlies a clarification of DPOD areas of action, in relation to UD and accessibility:

- On the macro level, with incentive to generate political influence, DPOD's political department embraces ethics, understandings of disability and views on human rights.
- On the meso level, DPOD consultants debate political agendas with political decision-makers and leave their mark on accessibility an UD through legislation and regulations.
- On the micro level, user representatives of DPOD share their experience of accessibility and Universal Design in collaborative relationships with architects and stakeholders. The user representatives experience the functionality of accessible design solutions on their own body and in so doing they can support the professional design process, facilitating need-based knowledge and "one-to-one insight" of accessible solutions.

On the macro level, with an overall motivation to eliminate body-based discrimination in our built environment and thereby improve independence and everyday life for persons with impairments, the DPOD takes a political starting point in the United Nations Convention on the Rights of Persons with Disabilities.

The Convention emphasises equality, inclusion and the understanding that difference in ability is a natural and foreseeable human condition or experience. Physical barriers and limitations which generate disabilities are initially environmental challenges, interactions between society and individuals. From a human rights perspective, the DPOD organisations recognise UD and accessibility as resources for

realising a higher level of equality for their diverse group of members; people with impairments [7].

However implications from the PhD research studies are that present understandings and motivations of UD and accessibility of this particular user group and their collaborative partners are not the same. In collaborative relations and the discourse as such, UD and accessibility is individually seen from an architectural design perspective and a human rights perspective.

From an architectural design perspective, UD and accessibility are viewed as the physical construction of the design, a functionality that is to aid individuals with a disability. Hence the architectural or spatial *quality* of the design is a priority for the architect.

From a user and human rights perspective, UD and accessibility are viewed as the psychological construction of the design. Hence the architectural or spatial *equality* of the design is a priority for the user. Case studies, observations and interviews from the PhD research project, show that notions of UD and accessibility in the DPOD user group is leaning towards the action of design, what accessible design solutions “do” and not so much towards what they “are”.

Narratives of how accessible design solutions are perceived and experiences on mental levels are more present in interviews with DPOD representatives than the actual physical construction of the design.

*“I recognise, when I see a ramp in front of a building it is for me a pleasing sight, whereas for the architect it is not a pleasing sight to see a beautiful building maculated by a ramp”*

- DPOD user representative

I see the attention of the user to the psychological construction of the design, of what design “does” as valuable knowledge in this relation, as the perspective angles the view of design and architecture from form, function and aesthetical values toward a view of its social construction and its inclusive contribution.

The perspective may challenge some architects’ focus on the physical construction and spatial quality of the design. On the other hand, this viewpoint inspires the thinking of architecture as a cluster of dynamic elements that play an active role in our everyday life. This thinking is underlying principles which are well-known inspirations in the mind set of most architects. From this philosophy, spaces and architecture are not passive constructions; they are significant actors in society and they can be seen as active forces in pursuing spatial equality [8].

When I use the term spatial equality, I am aware that the term is mostly seen in a socio-economic context, as socio-economic significances in different communities. The space within different locations is the clustering of various groups of people who share similar socio-economic positions. From that perspective, spatial inequality is viewed as the unequal amounts of qualities, resources and services depending on the area or location.

In this paper, I aim to use the term in a different setting and broaden the concept of spatial equality to include architectural qualities, resources and services. Hence the quality and functionality of designs and the accessibility of spaces are influential factors for resources and services to flow and fulfil their purpose. I reason that qualities, resources and services which are not accessible serve no purpose [9].

From a user perspective, independence and social interaction are dependent on inclusive design and spatial equality. Poorly functional architectural solutions and non-inclusive spaces hinder independency and social participation. Interviews conducted with representatives of the DPOD user group reveal narratives of how physical accessibility is not taken into consideration in architectural planning and how qualities, resources and services are not accessible for all. Interviewees from the user group respond that spatial equality is still to be established and carried out in the architectural field.

When people are a factor of the equality measured, it is noteworthy to mention weighing of complex individual features and dynamic influences. More so, as many statistical research techniques, the measurement of experienced equality is sensitive to individual specification, individual perceptions, dynamic political and social waves and the combination of these. Hence the qualitatively oriented methods used in the PhD research, reflects and unfolds a number of perceptions of spatial equality and illustrates these. The method does not reflect all perceptions, neither a general view.

Nevertheless, a predominant attention to spatial equality of the users is mirroring a predominant attention to spatial quality of the architects. Qualitative interviews with representatives of key organisations from the building industry and practicing architects indicate that understanding accessibility and UD as social motivators is not necessarily a part of the prioritised attention. Many considerations are at play in complex processes of designing and constructing built environments. Hence priorities of environmental factors, sustainability, energy consumption, quality and costs may weigh more than accessibility and spatial equality in some architectural agendas.

Also, from the research interviews, the priority of architectural quality gives the impression of being detached from the priority of architectural equality. The division indicates accessibility and UD is yet to be defined and implemented as architectural design values and as an element of architectural quality.

In the paper, I use the term architectural quality pragmatically and demonstrably to cover construction and thoughtful use of materials, dimension, shape, color, texture, proportion, light and acoustical performance, sensory aspects and so forth. I also view architectural quality as value-based approaches, not only embodied in the final project, but just as much in the design process.

Interviews in the architectural field point toward the understanding that people with impairments are specific minority groups which require specific design solutions to compensate for their individual challenges, in the built environment. This parallels wide-ranging attention to the individual's impairment and limitations in society and is answered with accessible design solutions exclusively for people with impairments, often disconnected from the overall architectural scheme. Primarily, in these interviews, the motivation for accessibility is often referred to as objectives of meeting the accessibility requirements of the Danish Building Regulations.

At the same time, long-standing prominent focus on physical accessibility and its codification has led to critiques in the architectural field. The critical position grows from the view that the interpretation of accessibility in the Danish Building Regulations, represented by codified rules and standards, is a limitation of the creative design processes for architects. From the conducted interviews accessibility legislation; accessibility requirements and regulations' operational measurements and standards appear to be understood as conflicting matters with innovative thinking and architectural design values.

From that perspective, architecture is required to adjust and at times compromise with architectural quality to achieve equality [9]. Responses from the interviewed Architects confirm this approach to accessibility, in line with the view on diversity.

*“How many disabled individuals are we talking about? Is it really fair that a small group of people with disabilities should have such a great impact on how we create architecture?”* - Representative of the architectural field

Among other aspects, this view of accessibility has led to approaches, which somehow separates physical accessibility and architecture from each other (spatial quality from spatial equality) and to some extent separates people with impairments from the rest of society. Despite examples of collaboration between the architectural field and the DPOD user representatives, architecture projects rarely show an integrated and holistic approach when it comes to UD and accessible design solutions [10].

By some means this reflects a general challenge in the Danish building industry; it is a challenge to identify building projects that embodies UD values and meet rounded accessibility strategies as a part of the architectural quality. In many architectural projects, accessibility still appears as specific “ad-on solutions”, as architectural equality for some and not architectural quality for all - which is a paradox in itself. The paradox emphasises a need to discuss accessibility and UD from other angles, through which the theoretical basis and practical applicability of UD is to be addressed [11].

Nevertheless, these findings can be seen as useful knowledge for advancing understandings of UD values and social motivations of accessibility. Interviews with representatives from the building industry point to an insight and recognition of these matters. Interviewees describe responsiveness to the challenge of implementing accessibility in the overall architectural scheme as architectural values. Responses also point toward a willingness of change and a motivation of enhancing design strategies toward more holistic mind sets.

The architectural field is requesting advanced insight in the lives of people with impairments to understand the motives behind building legislation in line with recognising how accessibility requirements can be implemented as architectural qualities. From most architects’ perspectives, architectural compromises of quality and “ad on solutions” are not desirable; they reveal the ways in which our society (represented by rules and standards) engages to provide physical access in the planned and built environment.

*“When you are able to create architecture of high quality, you can design an architectural solution that solves it all, with no “add ons”. When I say “add ons”, I mean, you do not design a staircase and then put up a lift afterwards to help people with a mobility impairment, it must be an embedded part of the architecture”*

- Representative of the architectural field

From an architect’s perspective, accessibility legislation and regulations only reveal the ways in which society formulates strategies for meeting the requirements of people with impairments. Accessibility requirements do not respond to the manifold interactions between diverse bodily varieties and material environments.



From a user perspective, “add-on solutions” and architectural compromises reveal the ways in which architects and the building industry provides or limits access to education, work, social communities and participation in daily life activities.

*“I have just been in a meeting with the architect and his suggestion is disabled people are to use the back entrance of the hotel. But, then I mentioned this will send us back in time to former South African conditions. Who is to use the main entrance and who is to use the kitchen entrance on the back side of the building?”*

- DPOD user representative

Moving balanced collaborative frameworks and shared ambitions further than “add-on solutions” and the current Danish Building Regulations might open the way for new and refined motivations of inclusive built environments.

Elaboration of unbalanced positions, unlike understandings and unshared motivations draws attention to present collaborative processes and their limitations. Initiating new architectural platforms that involve user groups in the development cycle addresses the necessity of clear roles, well-defined responsibilities and transparent positions.

Amongst other aspects, the findings of dissimilar motives and understandings of UD and accessibility reveal challenges in the present dialogue and difficulties in achieving shared ambitions. This could be answered with a possible means to advance the dialogue toward an equal objective; to reduce body-based discrimination in physical constructions and thereby support participation and daily life for not only people with impairments, but for human multiplicity [12].

#### **4. Rethinking inclusive architecture**

On a macro level, a wide-ranging attention to the individual’s impairment and limitations in society has led to a narrow-minded motivation of physical accessibility as specific solutions designed to solve the challenges of persons with impairments (meso level). On a micro level, this viewpoint is interpreted from the Danish Building Regulations into specific accessible designs, detached from the overall architectural scheme. Understanding the complex implications of living a life with impairment is essential for designers and architects in order to recognise how accessible design and user friendly solutions support and inspire independence and empowerment. Living with impairment, independence and social interaction rely on accessibility, UD thinking and well-designed architecture [13].

However furthering inclusive built environments and UD strategies is more than a helping hand to individuals with impairment; it should be noted as possible catalysts to generate well-functioning social communities, advancing independent living and defying general challenges of social isolation and loneliness [14].

The difference in physical characteristics of the body as a natural part of our lives and impairments viewed as a part of human diversity is useful knowledge, for the practicing architects and the DPOD user group to share. In the process of understanding motives of UD and accessibility and translating these into architectural form and function, the scope of reviewing impairment as a condition of human variety (and lifespan) is useful awareness for both groups in the collaborative relationship.

Along with moving the perspective of limitations from the individual to the relation to surroundings, the UD paradigm not only makes clear that architecture should not differentiate between persons with impairments and persons without impairments. The UD thinking responds to the awareness that accessible design solutions and inclusive built environments should not only eliminate barriers for some, but enhance participation and experiences for everyone.

Rethinking inclusive architecture and embracing processes that include a wider range of heterogeneous users could encourage new understandings of human diversity as well as spatial equality.

The UD paradigm is suggested as a promising means for creating inclusive built environments as the principles hold the potential of moving our perspective from specific “accessible add-on solutions” to a more rounded architectural thinking. Moreover UD can be viewed as a possible way of bridging the gap between DPOD user representative and the architect as the principles take into consideration both the physical- and psychological construction of accessibility. The prospect of bringing together spatial quality and spatial equality, in collaborative frameworks appears to be an encouraging means to meet motives of both user and architects in the future.

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